

Remarks

Claims 1-21 were pending in this application. By this paper, Applicants affirm the provisional election made on April 26, 2006 and hereby cancels non-elected claims 13-21, as well as original claim 10. The present Amendment adds new claims 22-30 and also amends claims 11 and 12 to correct minor typographical errors. No new matter has been added by the present Amendment. After the Amendment, claims 1-9, 11-12 and 22-30 will be pending. Reconsideration of the application in view of the present Amendments and the following remarks is respectfully requested.

Claims 1, 10, 11 and 12 were rejected under 35 U.S.C. § 102(a) as being anticipated by WO 02/70781 to Kolberg et al. Since WO 02/70781 did not publish in English, the examiner relied on the corresponding national entry U.S. Application Publication No. 2004/0065389 to Kolberg, hereafter "*Kolberg*", for the disclosure of WO 02/70781.

The present invention is directed to a temporary anti-corrosive treatment of a metal surface that consist predominantly of aluminum and/or zinc. The temporary primary passivating coating provides corrosive protection to the underlaying metal surface until the primary passivating coating is removed from the metal surface prior to the final step of conversion coating the metal surface. Thus, the conversion coating is in direct contact with the aluminum and/or zinc metal surface without the presence of the primary passivating coating layer.

Specifically, Applicants' invention as recited in independent claim 1, recites a method for the temporary anti-corrosive treatment of a metal surface that consist predominately of aluminum and/or zinc. The method comprises (a) placing the surface of the metal in contact with an anti-corrosive composition comprising 2.0-400 g/L phosphate ions, 0.5-400 g/L fluorometallate ions, and a pH of between 1.0-4.0, for a time period of between 0.1-200 seconds, (b) drying the anti-corrosive composition to form a primary passivating coating on

the metal surface, (c) removing the primary passivating coating from the metal surface, and (d) conversion coating the metal surface.

Kolberg does not disclose, teach or suggest the present invention. More specifically, *Kolberg* does not disclose or teach a method of removing a primary passivating coating from the metal surface prior to conversion coating. *Kolberg* is primarily concerned with a process for the application of a robust permanent phosphate coating layer to a metal surface for corrosion protection which remains as either a pretreatment layer functioning as an adherent base for subsequent painting, or as a treatment layer if no other organic layer is applied to the phosphate coating (par[0002]). This robust phosphate coating notably contains up to 10 g/L of zinc ions, up to 25 g/L manganese ions and a list of several other metal ions in individual concentrations up to 3 g/L which are not contained in Applicants' invention (par[0015-0019 & 0059]). The Patent Office states that the *Kolberg* coating is removed. This is however not the case. *Kohlberg* discloses a permanent phosphate coating (along with zinc, manganese, among other components) that comprises either one or two phosphate coating applications. In discussing his coating process, *Kolberg* recites that the metallic surface may be cleaned, pickled, rinsed, and/or activated before the first and/or second phosphating (par[0089]). Cleaning, pickling, rinsing and/or activating the first phosphate coating layer is not "removing" the first phosphate coating layer. Therefore, *Kolberg* does not disclose or teach removing the primary passivating coating from the metal surface as recited in claim 1 of Applicants' invention.

In fact, contrary to the Patent Office's understanding of *Kolberg*, *Kolberg* ardently purports that his phosphate coating layer is not removed by his cleaning process. Cleaning, pickling, rinsing and/or activating a first phosphate coating layer prepares the first phosphate coating layer for a subsequent optional coating by degreasing or cleaning this coating layer (par[0109]). *Kolberg* recites that the resistance of the first phosphate coating layer to cleaning fluids is higher if this coating layer is crystalline (par[0088]). *Kolberg* further recites that the first phosphate coating layer according to this invention has proved extremely resistant on account of its crystallinity (par[0116]) and that it is unexpectedly robust

(par[0123]). *Kolberg*'s touting of extreme resistance and unexpected robustness of his first phosphate coating layer indicates that the coating layer is not temporary and thus, not removed prior to conversion coating. Therefore, *Kolberg* does not disclose, teach or suggest removing a primary passivating coating from the metal surface prior to conversion coating, which is an element of claim 1 of Applicants' invention.

Additionally, *Kolberg* does not disclose, teach or suggest an anti-corrosive composition comprising 0.5-400 g/L fluorometallate ions as recited in claim 1 of Applicants' invention. In Applicants' specification, suitable fluorometallate ions are identified as being preferably selected from the group consisting of TiF_6^{-2} , ZrF_6^{-2} , HfF_6^{-2} , SiF_6^{-2} , AlF_6^{-3} , GeF_6^{-2} , SnF_6^{-2} , BF_4^- , and mixtures thereof (par[0021]). *Kolberg* only recites in passing that the phosphating solution may contain ions of aluminum, boron, iron, hafnium, molybdenum, silicon, titanium, zirconium, fluoride and/or complex fluoride (par[0059]). A fluorometallate ion is not a free elemental metal ion as those suggested by *Kolberg*, such as Al^{+3} or Fe^{+3} , and vice versa. Additionally, it is not apparent that a "complex fluoride" ion is a fluorometallate ion in the context of Applicants' invention. Fluorometallate ions are a specific class of ions comprising metal atoms ionically bonded to fluoride atoms which do not dissociate as free elemental metal ions and fluoride ions when in solution. Accordingly, *Kolberg* does not fairly disclose, teach, or remotely suggest a first phosphate coating comprising fluorometallate ions.

Accordingly, *Kolberg* does not disclose each and every element of claim 1 and therefore the 35 U.S.C. § 102(a) rejection is improper.

Claims 11 and 12 all depend directly on claim 1 and therefore allowable for the same reasons as claim 1. Moreover, these claims add further features which render them separately patentable.

For instance, claim 12 recites that the removal of step c) takes place prior to step d). As discussed above, *Kolberg*'s coating is not removed.

Claims 2 and 4-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kolberg* because the Patent Office believes that the inherent ratios and ranges suggested by *Kolberg* read on the claimed ratios and ranges and therefore, a prima facie case of obviousness exists. Applicants respectfully traverse this rejection.

Claims 2-7 all depend either directly or indirectly from claim 1 and are therefore allowable at least for the same reasons as claim 1. Moreover, these claims add further features which render them separately allowable.

For instance, claim 2 recites that the ratio of fluorometallate anions and phosphate ions is 0.10:1.0 to 5.0:1.0. This range of ratios results from calculating the ratio of a range of concentrations of ion species disclosed in the specification based on their respective molecular weights. In one embodiment, the ratio of fluorometallate anions to phosphate ions may be based on the concentrations of $[\text{TiF}_6^{-2}]/([\text{H}_3\text{PO}_4] + [\text{H}_2\text{PO}_4^{-1}] + [\text{HPO}_4^{-2}] + [\text{PO}_4^{-3}])$. However, in *Kolberg*, it is impossible to ascertain a ratio of fluorometallate anions to phosphate ions because the specification recites P_2O_5 for the phosphate molecular species but does not recite any molecular species for a fluorometallate anion. Thus there is no inherent ratio of phosphate ions to fluorometallate anions and accordingly, the rejection is improper.

Claim 3 recites the concentration of the respective solutions which provide phosphate ions and fluorometallate ions to the anti-corrosive composition. *Kolberg* does not disclose, teach or even remotely suggest concentrations of solutions which provide phosphate ions and fluorometallate ions to the first phosphating solution. Therefore, this rejection is improper.

Claim 4 recites that the phosphate solution is present in the treatment composition in an amount of 25-65 wt. % with the fluorometallate solution being present in the treatment composition in an amount of 35-75 wt. %. *Kolberg* does not disclose, teach or even remotely suggest such a composition. Accordingly, this rejection is improper.

Claim 5 recites that water is present in the anti-corrosive composition in an amount of 2 to 50 wt. %, based on the total weight of the composition. *Kolberg* recites that the first aqueous acidic phosphating solution contains up to 10 g/L Zn ions, up to 25 g/L Mn ions and up to 300 g/L phosphate ions (par[0015]). Additionally, *Kolberg* recites that other optional metal ions may be present in a nominal concentration of up to 2 to 3 g/L (par[0059]). Assuming one liter of the first aqueous phosphating solution and one optional metal ion species, the combined maximum weight of these ions is 338 g for a resulting concentration of 338 g/L. This suggests that the maximum inherent percentage of water in the first aqueous phosphating solution, given that water has a density of 1.0 g/ml, is 66.2%, which is outside of the claimed range. Accordingly, this rejection is improper.

Claim 6 recites that the phosphate solution and the fluorometallate solution which are provided to the anti-corrosive composition respectively comprises phosphoric acid and hexafluorotitanic acid. *Kolberg* does not disclose, teach or even remotely suggest that the claimed acids be provided to his phosphating solution. Accordingly, this rejection is improper.

Claim 7 recites that the phosphoric acid is present in the composition in an amount of 1.0-15.0 wt. %, based on the total weight of the composition, and the hexafluorotitanic acid is present in an amount of 1.0-20.0 wt. %, based on the total weight of the composition, and the composition further comprising water present in an amount of 45-98 wt. %, based on the total weight of the composition. the percentage by weight of phosphoric acid, hexafluorotitanic acid and water present in the anti-corrosive composition. *Kolberg* does not disclose, teach or even remotely suggest these two acids in any quantity by weight of the first phosphating solution. Moreover, *Kolberg* contains additional ions species in his aqueous acidic phosphating solution that are not part of Applicants' invention, such as zinc, manganese and a series of optional metal ions. These additional components alter the compositional makeup of the aqueous acidic phosphating solution and make a direct comparison based on total weight of the composition improper between *Kolberg* and Applicants' invention.

Accordingly, the 35 U.S.C. § 103(a) rejections of claim 2-7 are improper and must be withdrawn for the reasons discussed above.

Claims 8 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kolberg* in view of U.S. Patent No. 4,287,008 to Torok et al, herein after "*Torok*." These claims depend directly on claim 1. Applicants respectfully traverse this rejection.

As discussed above, the 35 U.S.C. § 102(a) rejection of claim 1 in view of *Kolberg* is improper. *Kolberg* does not teach each and every element of claim 1. *Torok* does not teach, disclose or suggest the missing elements from claim 1. Thus, the combination of *Kolberg* and *Torok* does not teach, disclose or suggest all of the elements of these claims. Accordingly, the § 103(a) rejections of claims 8 and 9 over *Kolberg* in view of *Torok* is improper and must be withdrawn for this reason.

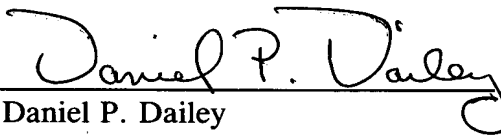
Claims 22-30 have been added by the present Amendment. All of the elements of these claims are supported in the specification and there is no new matter. Moreover, these claims are patentable for their own specific elements recited therein.

Applicants have made a genuine effort to respond to each of the Examiner's rejections in advancing the prosecution of this case. Applicants believe that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested. If any additional issues need to be resolved, the Examiner is invited to contact the undersigned at his earliest convenience.

Please charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

JASDEEP SOHI ET AL.

By 
Daniel P. Dailey
Reg. No. 54,054
Agent for Applicants

Date: July 28, 2006

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351